BES500058

AutoCAD Tips, Tricks, and the Most Dependable Drafting Techniques

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Timmons Group // The CAD Geek

Learning Objectives

- Learn how to implement dependable drafting techniques that improve productivity
- Learn how to maximize your use of AutoCAD by stretching the limits of common commands
- Discover how recently added features can supercharge your use of AutoCAD
- Learn how to impress your colleagues with secret tips that only AutoCAD veterans and gurus know

Description

Sit down, buckle up, and keep your hands on your keyboard for the fourth installment of the top-rated on-demand class of Autodesk University 2020 by Autodesk Expert Elite member Donnie “The CAD Geek” Gladfelter. After a challenging year that disrupted many established workflows, the focus for this installment is dependability. Join Donnie as he shares the most dependable drafting techniques acquired from 15 years of blogging and 2 million-plus YouTube video views, and as the design technology manager for a civil engineering firm of 700-plus professionals. From simple to advanced, you’re sure to discover new ways to remove tedium and boost your ability to meet project deadlines. Hourly employees need not attend as this session will only include dependable techniques proven to improve productivity.

Speaker(s)

Donnie Gladfelter is a highly visible and respected thought leader in the CAD community. Named one of Autodesk's Top 35 Young Designers Under 35, he is well known for The CAD Geek Blog (https://thecadgeek.com), six Autodesk Official Press books, and dozens of Autodesk University classes since 2007. An award-winning and top-rated speaker at Autodesk University and other industry events, Donnie has presented to audiences of 60,000+ people, and provided training to thousands on Autodesk design technology. As an Eagle Scout, he helps design teams be prepared for whatever their projects throw at them as the Design Technology Manager at Timmons Group (an ENR Top 500 Firm), and as a former member of the Autodesk User Group International (AUGI) board of directors.

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Interactive Handout

An interactive version of this handout with video demonstrations is available at:
https://thecadgeek.com/au/au2021/au-2021-autocad-tips-tricks/

Customization

Add Coordinate Readout to Status Bar

As a civil engineering professional, I constantly reference the Coordinates in my drawing. Unfortunately, the coordinate readout is no longer part of the default AutoCAD interface.

No problem, we can add it back with just two clicks.

How to Do It

1. From the Status Bar, click the Customize button.
2. Choose Coordinates from the Customize menu.
3. Note Coordinate readout in the Status Bar.

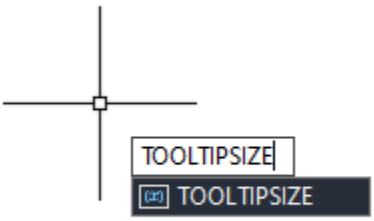
Adjust Dynamic Input Text Size

Dynamic Input is a tool that's grown on me over the years. While helpful, maybe you would prefer the text was larger or smaller than its default?

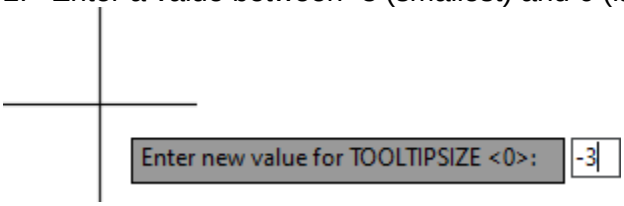
No problem, you can increase of decrease the size of this text by setting the TOOLTIPSIZE system variable. While the default value is 0, you can set the variable to a value as small as -3, or as large as 6.

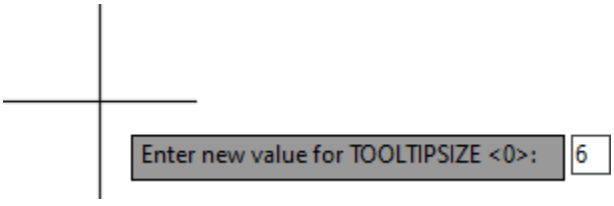
How to Do It

1. Enter TOOLTIPSIZE at the Command Line.

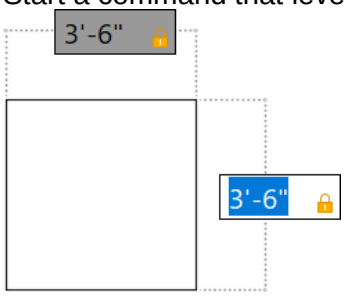


2. Enter a value between -3 (smallest) and 6 (largest).





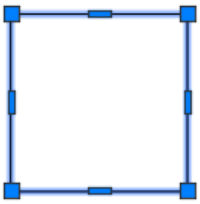
3. Start a command that leverages Dynamic Input to observe the smaller or larger text size.



Disable Glowing Selection Effect

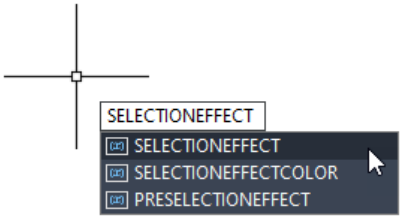
By default, when you select objects in AutoCAD, those objects glow, and maybe that's not something you prefer?

Great news! You can control it's display with the SELECTIONEFFECT system variable. Set it to 0, and now you'll get a classic dashed effect when selecting objects.

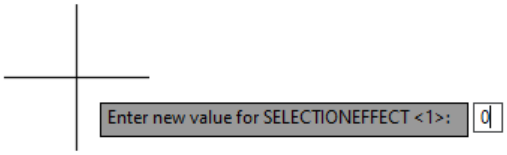


How to Do It

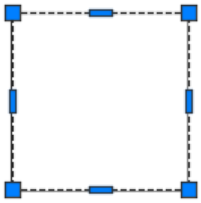
1. Enter SELECTIONEFFECT at the Command Line.



2. Enter a value of 0 to disable the glowing selection effect.

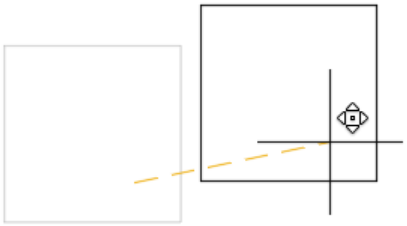


3. Select an object to observe the dashed effect of selected objects.



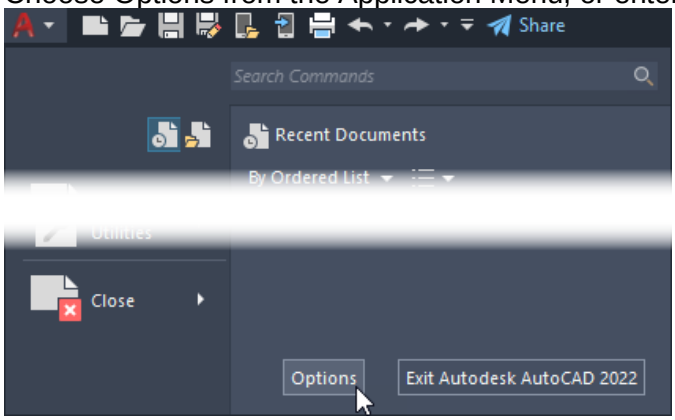
Change the Rubber Band Color

When using commands like Move, AutoCAD displays a “Rubber Band” from the base point you specify. By default, the Rubber Band is Yellow, but if that’s not your color, it’s super easy to change using the OPTIONS command.



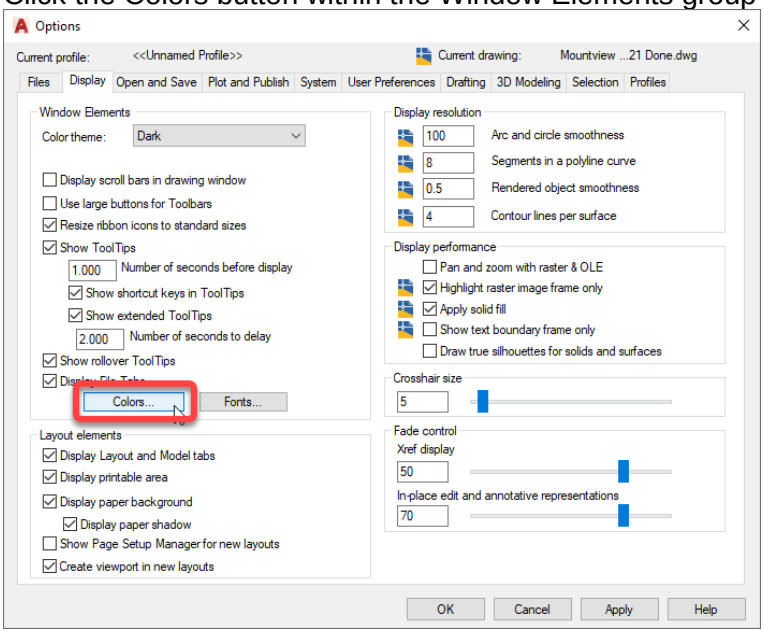
How to Do It

1. Choose Options from the Application Menu, or enter OPTIONS at the Command Line.

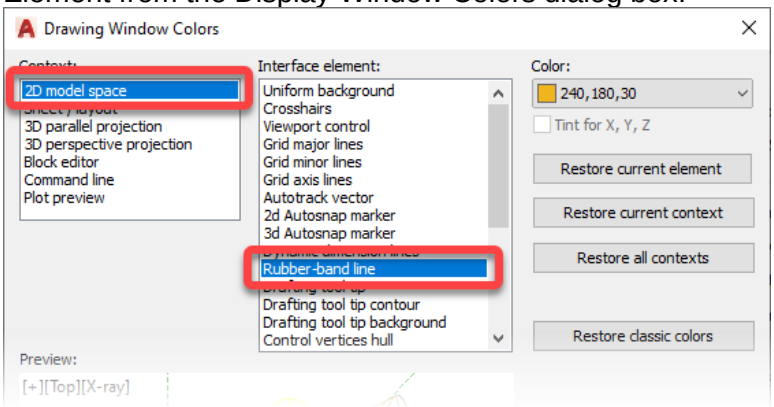


2. Within the Options dialog box, switch to the Display tab.

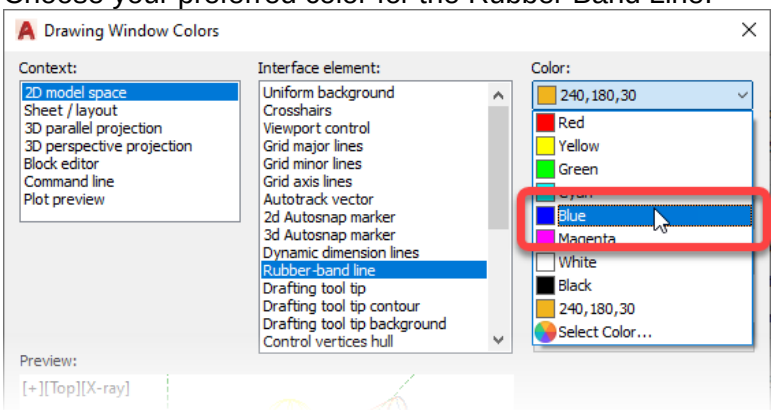
3. Click the Colors button within the Window Elements group of the Display tab.



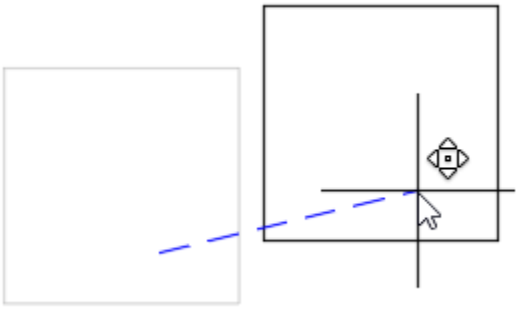
4. Choose 2D Model Space as the Context and Rubber-Band Line as the Interface Element from the Display Window Colors dialog box.



5. Choose your preferred color for the Rubber Band Line.



6. Click Apply & Close and then OK to exit the Drawing Window Colors and Options dialog boxes.
7. Observe the new Rubber-Band Line color by using a command such as MOVE.



Get a Grip

Multi-Function Grips

So first things first, what are multi-function grips? Think of them like power-up's for grips. To access them, just hover over the grip of a compatible object without clicking, and choose one of the available options.

Some of the AutoCAD objects that offer multi-function grips include:

- Lines
- Multileaders
- Dimensions

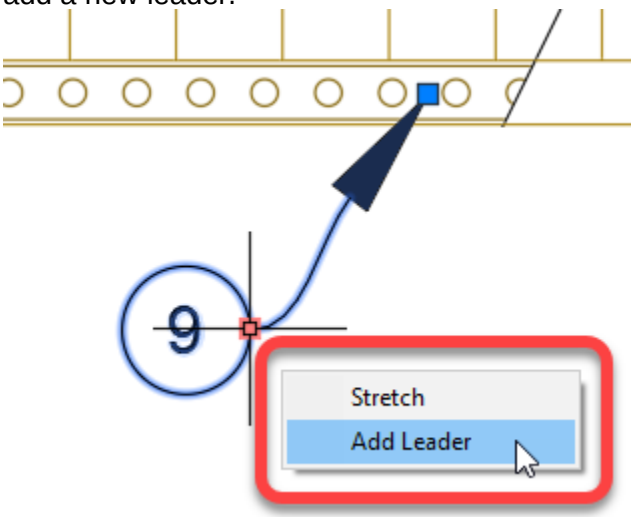
Multi-Function Grips for Lines

Let's start with Lines. Hovering over an Endpoint grip for a line displays the option to Lengthen or Stretch the Line.

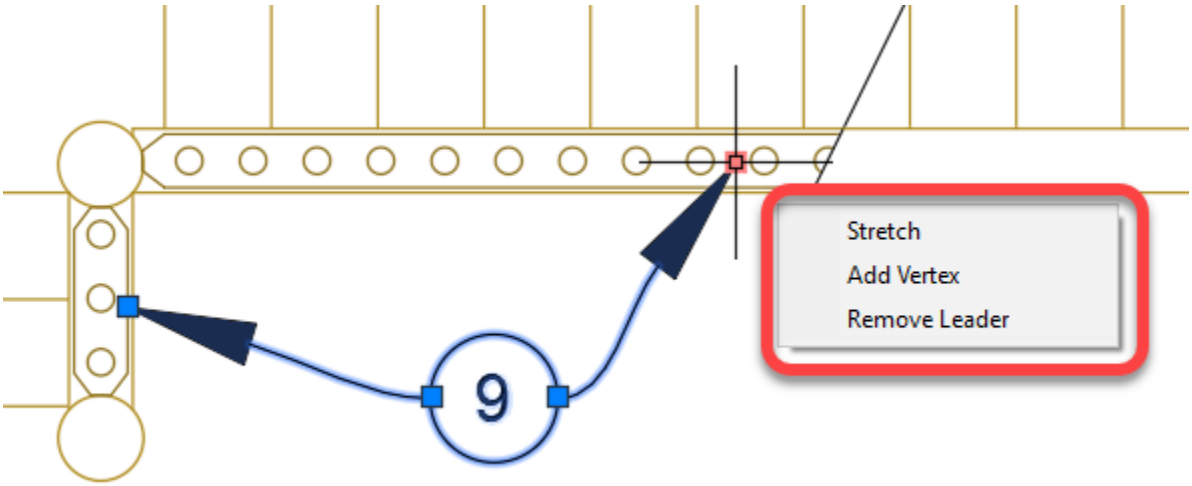
Multi-Function Grips for Multileaders

Multileaders have several Multi-function grips that make easy work of managing leaders.

In the example below, hovering over the base of the Multi-Leader displays the option to add a new leader.



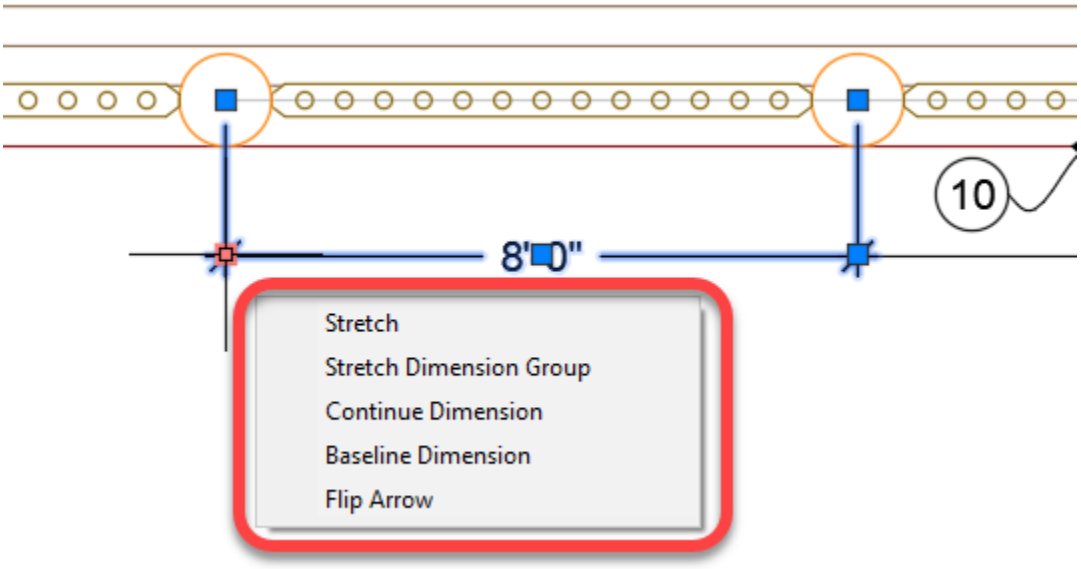
Conversely, hovering over the end of the leader displays an option to remove a leader.



Multi-Function Grips for Dimensions

Dimensions are yet another object where some handy multi-function grips are available.

For example, you can easily complete a run of dimensions by selecting on an existing dimension, hovering over the grip at the dimension line, and then choosing Continue Dimension.



It's even possible to use Multi-function grips to add another run of dimensions.

For example, to add an overall dimension, select a starting dimension and then choose Baseline Dimension.

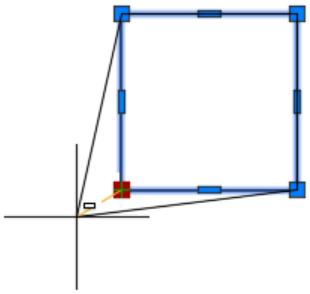
Toggle Grip Command with Spacebar

By default, when grip editing objects in AutoCAD, you run a version of the Stretch command. Did you know that's not the only command you have access to?

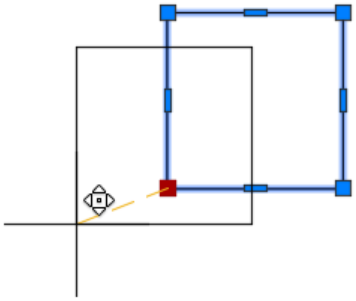
In fact, you can toggle between Stretch, Move, Rotate, Scale, and Mirror with nothing more than the spacebar.

How to Do It

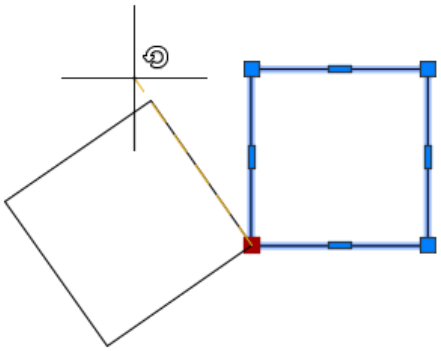
1. Select an object in your drawing to display it's grips.
2. Choose one (or more) grips to begin grip editing the object. By default, the Stretch command is used to begin editing the selected object.



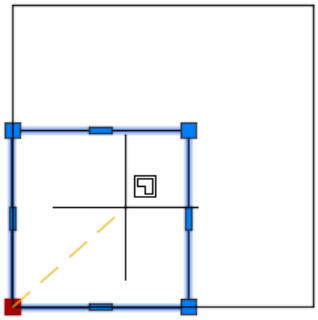
3. Press the space bar to toggle to the Move command.



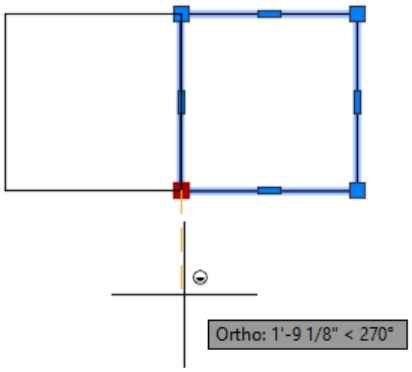
4. Press the space bar to toggle to the Rotate command.



5. Press the space bar to toggle to the Scale command.



6. Press the space bar to toggle to the Mirror command.



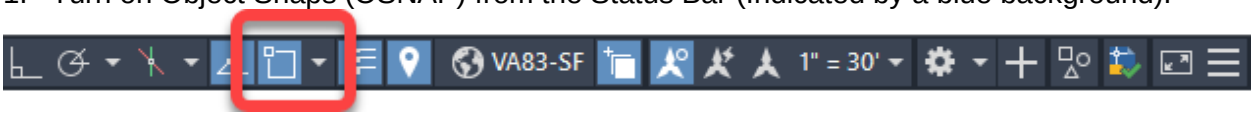
Using the FROM Object Snap

Ever encounter a situation where two lines that are supposed to parallel are no longer parallel? Someone probably got a little crazy with grips.

While you could fix such a situation by Erasing and re-Offsetting things, this is also a scenario where the lesser-used FROM object snap might prove helpful.

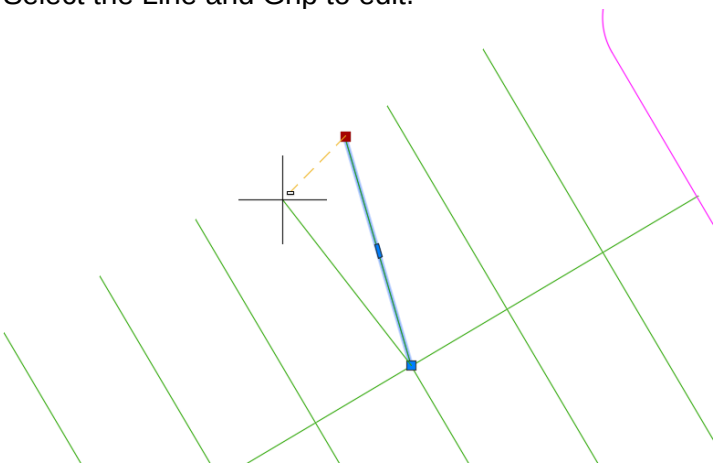
How to Do It

1. Turn on Object Snaps (OSNAP) from the Status Bar (Indicated by a blue background).

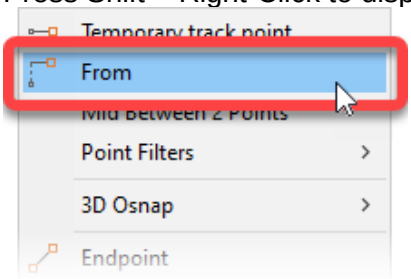


2. Enable the Parallel and Endpoint OSNAPs by clicking the disclosure triangle next to the OSNAP icon in the Status Bar to display the list of Object Snaps.

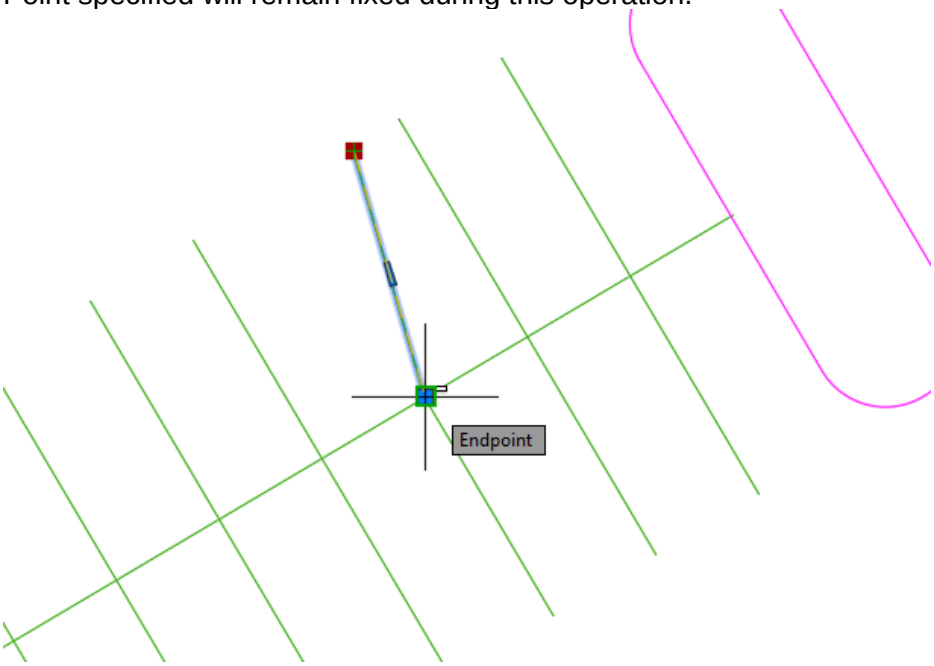
3. Select the Line and Grip to edit.



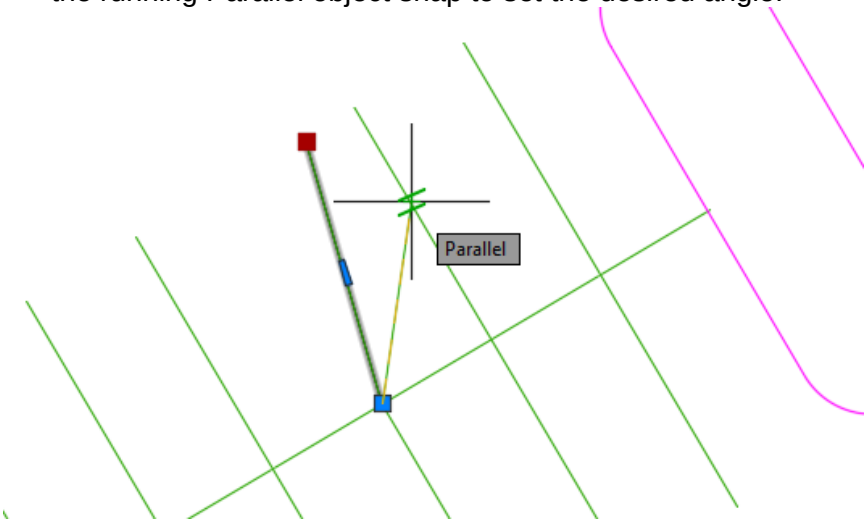
4. Press Shift + Right-Click to display the contextual Object Snap menu, choose From.



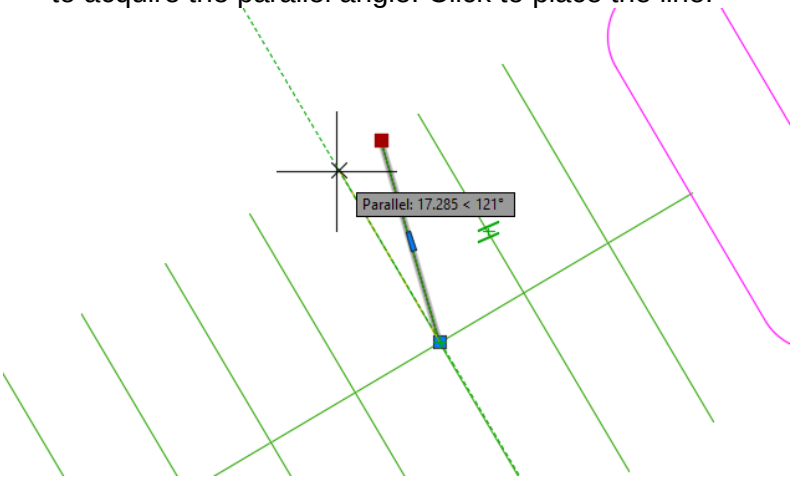
5. Use the running Endpoint object snap to specify the From Base Point. The From Base Point specified will remain fixed during this operation.



6. Hover (do not click) over an adjacent line whose angle you would like to match, and use the running Parallel object snap to set the desired angle.



7. Move your cursor near the desired parallel location, and leverage Object Snap Tracking to acquire the parallel angle. Click to place the line.



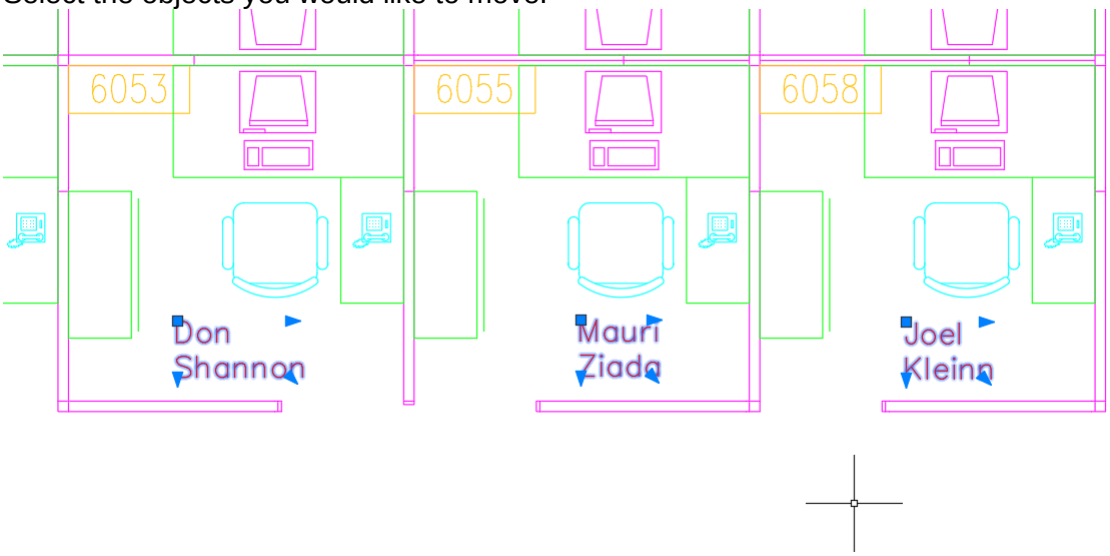
Getting Ctrl of AutoCAD

Nudge Objects with Ctrl

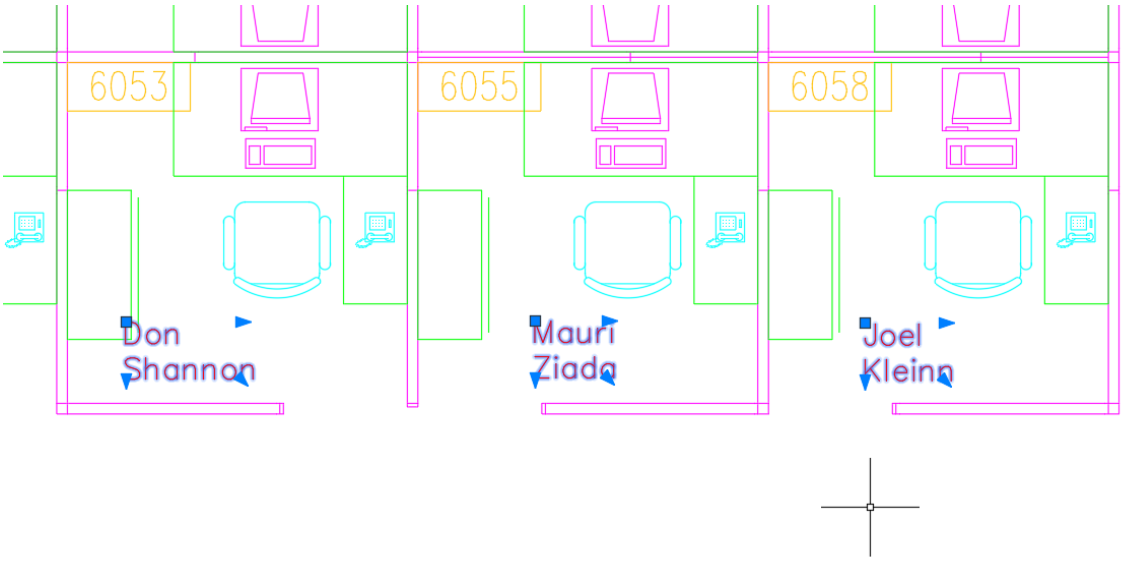
You often have some discretion about where we place things like text in our drawings, and need not worry about using the highly precise tools AutoCAD offers. For those situations you might find it helpful to “nudge” drawing items into place.

How to Do It

1. Select the objects you would like to move.



2. Press Ctrl + <Arrow Key> (Up/Down/Left/Right) to nudge selected object(s) in that direction.



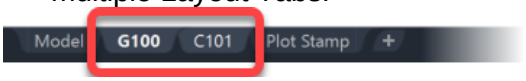
Copy Layouts with Ctrl

Especially when setting up the plan sheets for a project, it's not terribly uncommon to copy layout tabs.

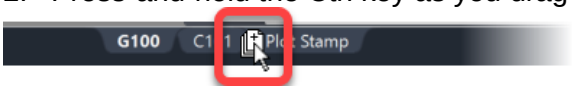
While there are several ways to do this inside AutoCAD, the easiest way is perhaps with the Ctrl key. Not just that, but as an added bonus, this tip also works in Microsoft Excel.

How to Do It

1. Select one or more Layout Tabs. Use Ctrl + Left-Click or Shift + Left-Click to select multiple Layout Tabs.



2. Press-and-hold the Ctrl key as you drag-and-drop a copy of the selected layout tabs.



Cycle Through Layouts with Ctrl + Page Up/Down

Speaking of Layout Tabs, did you know you can cycle through the Layouts in your drawing without touching your mouse?

Just press Ctrl + the Page Up or Page down key on your keyboard, and you can quickly cycle through all the tabs in your drawing.

How to Do It

1. With AutoCAD open, press Ctrl + Page Up/Page Down.

Page Down cycles to the right, and Page Up cycles to the left.

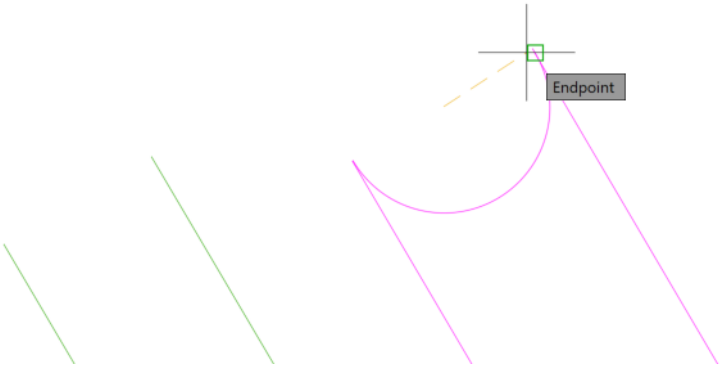
Reverse Arc Direction with Ctrl

By default, AutoCAD measures and draws angles in a counterclockwise direction. While this is perfectly fine in most cases, what if you need to draw something, like an arc, in a clockwise direction?

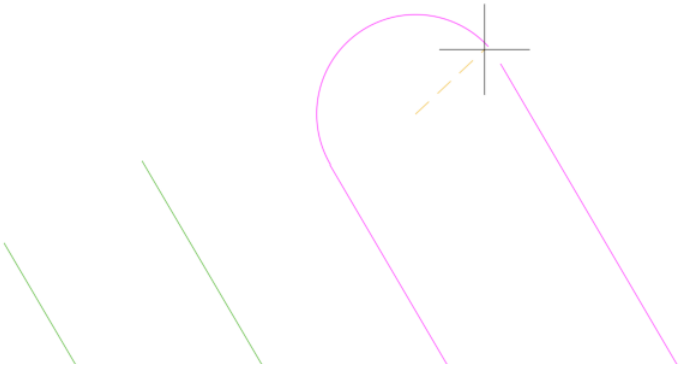
Not a problem! Just press-and-hold the Ctrl key while drawing your arc.

How to Do It

1. Start an Arc command such as Start Center End.
2. Specify the Start and Center points of the arc.



3. Press Ctrl when selecting the final point (End)



Change Text Case with Ctrl + Shift + U/L

No drawing is complete without text, but what do you do when that text is not in the right case?

As an example, what if you needed to change Title Case text to UPPERCASE text? No need to retype it. Just Press Ctrl + Shift + U to switch text to UPPERCASE. Alternatively, you can press Ctrl + Shift + L to switch text to lowercase.

How to Do It

1. Double-click on a piece of Single Line or Multi Line text to begin editing it.

2. Select the text you would like to change the case of.

3. Press Ctrl + Shift + U to capatilize (uppercase) the text, or Ctrl + Shift + L to change the selected text to lowercase.

Playing the Field

Add Fields to Single-Line Text (DTEXT)

While the Multiline Text editor has a button to add Fields, Single-Line text doesn't such a button. Does this mean we can't add Fields to Single-Line text / DTEXT?

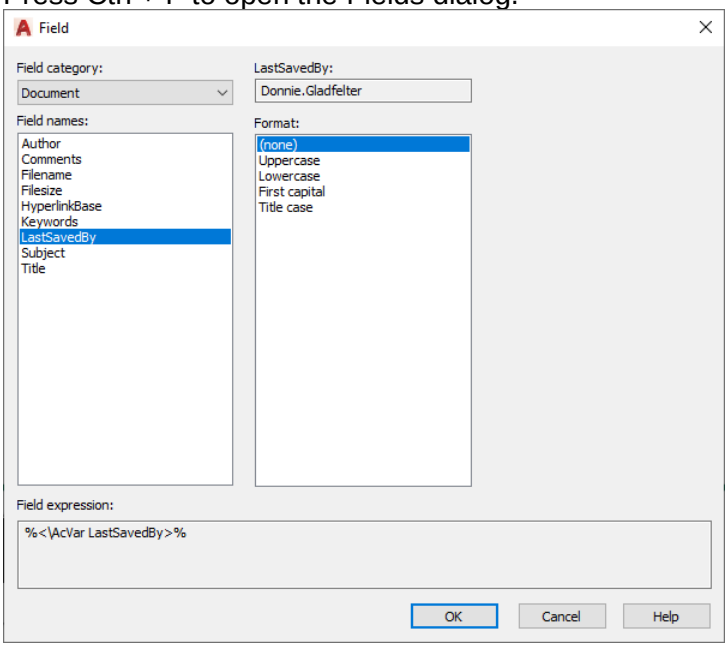
Absolutely not!

Just press Ctrl + F while editing DTEXT, and insert your Field as usual.

How to Do It

1. Create a piece of Single Line Text, or double-click on an existing Single Line Text entity to begin editing it.

2. Press Ctrl + F to open the Fields dialog.



3. Choose and insert your desired Field.

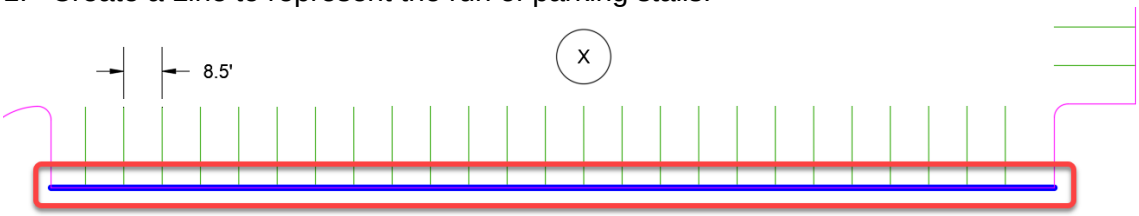
Calculate Parking Spaces with Fields

Are you a civil engineer who counts parking spaces manually (or makes an intern count them manually)? Put down your highlighter (or other manual counting instrument), and trade it for AutoCAD Fields.

Using the lesser explored Additional Format and Conversion Factor options of Fields, you can make AutoCAD count parking spaces automagically!

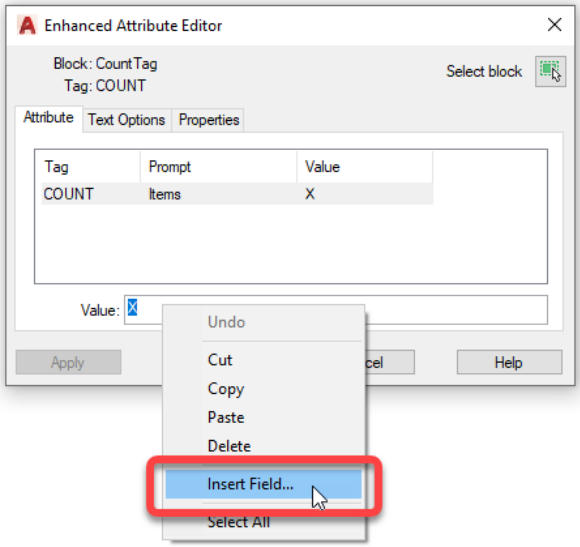
How to Do It

1. Create a Line to represent the run of parking stalls.



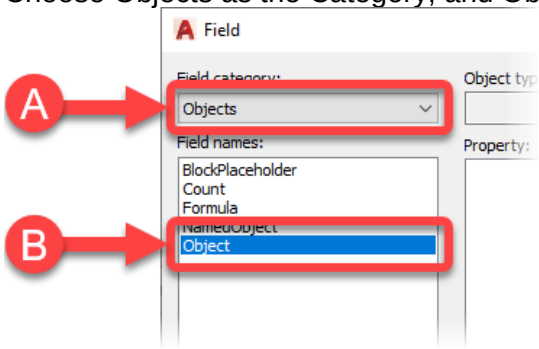
While you can technically use an existing line in your drawing, I've found creating a separate entity just for parking counts to be a better workflow.

2. Insert a Field into a Block Attribute or Text Entity in your drawing.

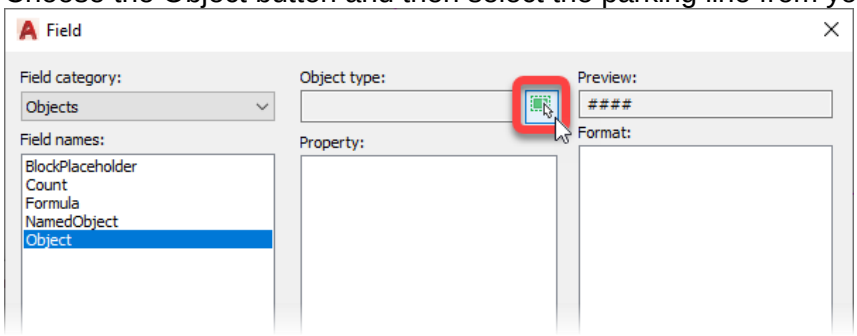


I prefer using blocks for parking counts so I can later use Data Extraction Tables to get a sitewide parking count.

3. Choose Objects as the Category, and Object as the Field Name.

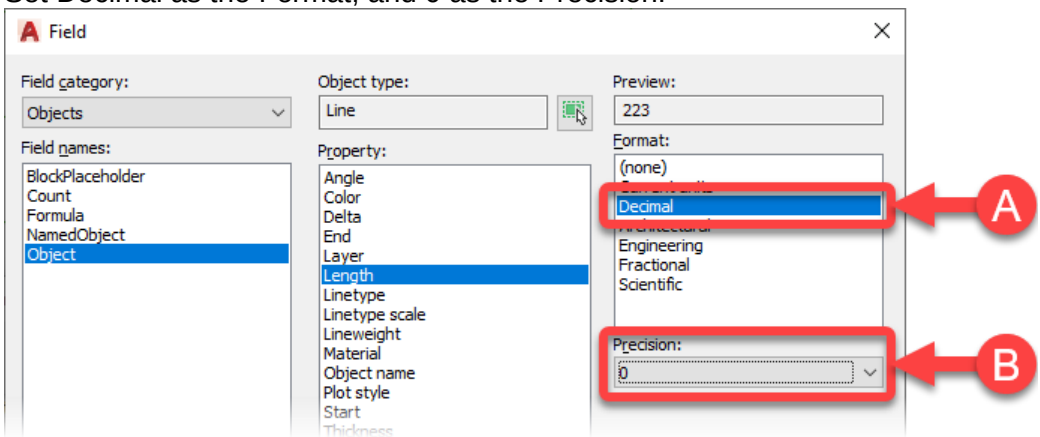


4. Choose the Object button and then select the parking line from your drawing.

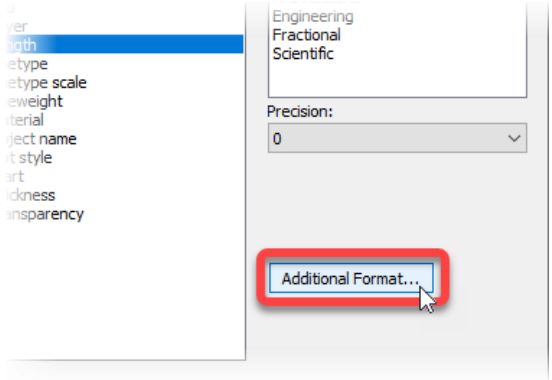


5. Choose Length as the Field Property to display.

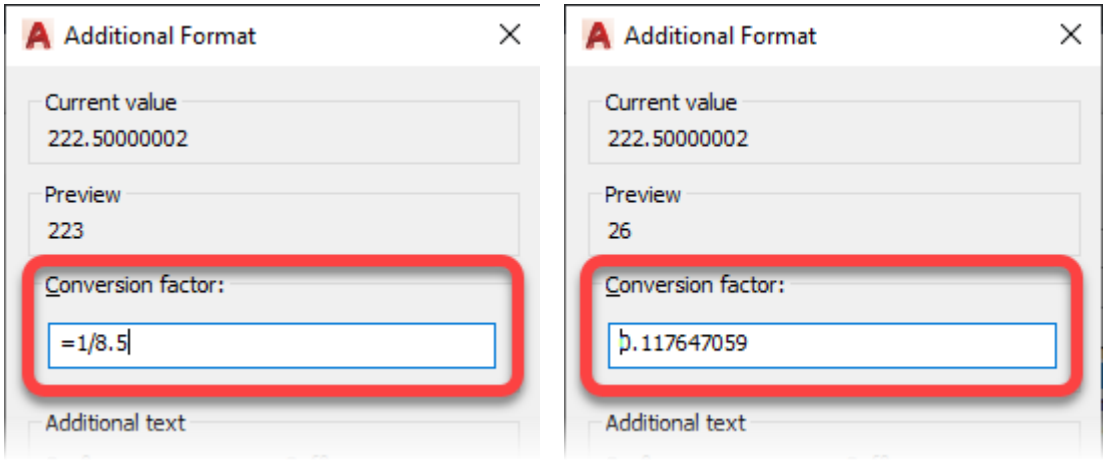
6. Set Decimal as the Format, and 0 as the Precision.



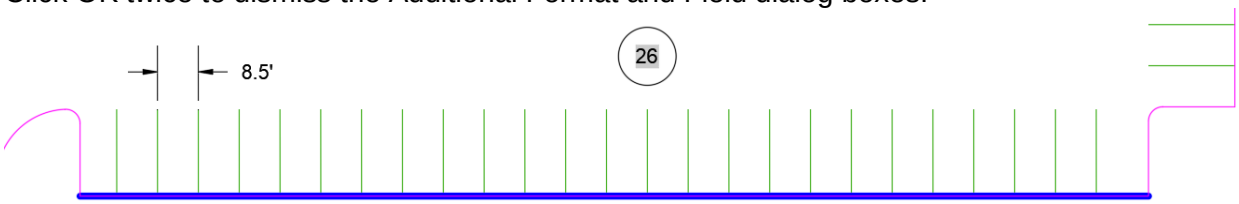
7. Click the Additional Format button.



8. In the Conversion Factor text box, enter =1/<Typical Parking Stall Width>, and then press Alt + Enter to solve the expression. In this example the typical parking stall width is 8.5', so we'll enter =1/8.5 as the Conversion Factor.



9. Click OK twice to dismiss the Additional Format and Field dialog boxes.



Calculate Maximum Occupancy with Fields

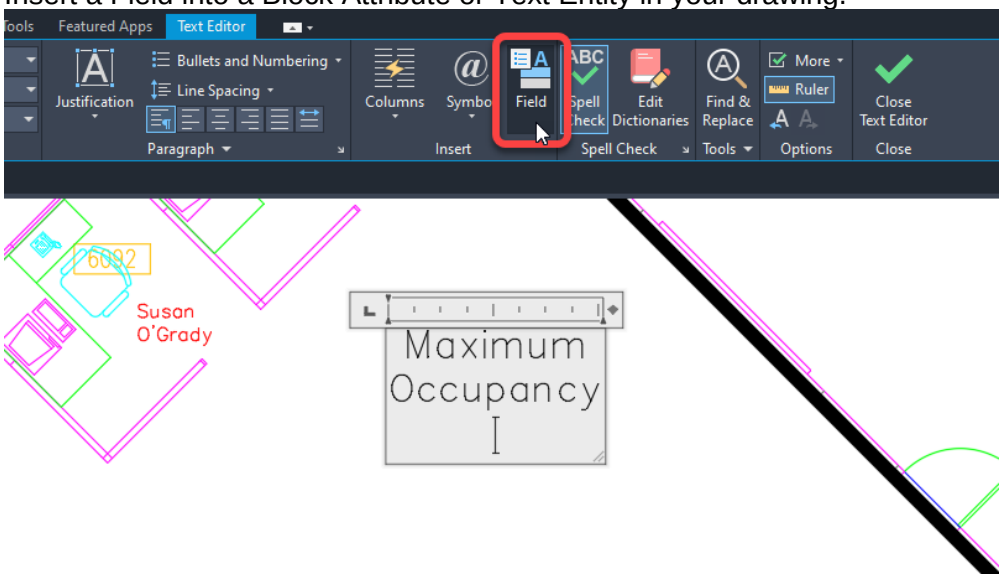
Automagically counting parking spaces is great, but what if your work happenes inside the building? No problem, there are plenty of uses for Fields with Conversion Factors inside the building too.

One example is to leverage the Area property of a Polyline to calculate occupancy ratings for a space.

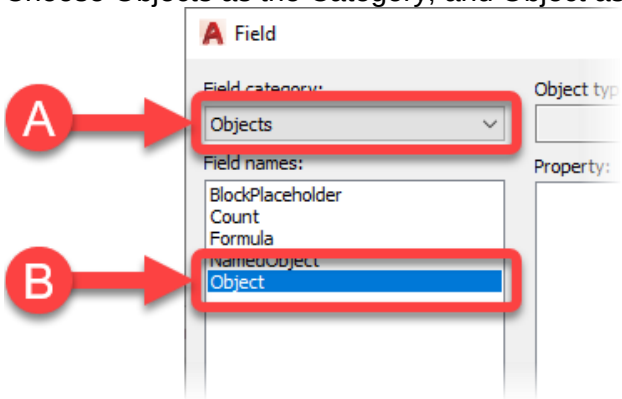
How to Do It

1. Create a closed Polyline representing the area you would like to calculate the occupancy of.

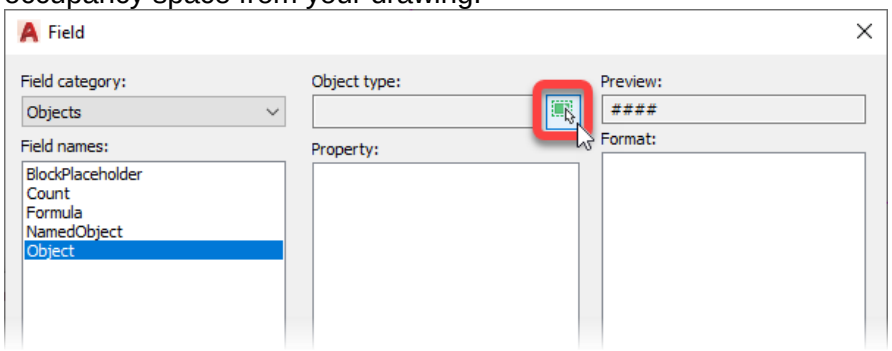
2. Insert a Field into a Block Attribute or Text Entity in your drawing.



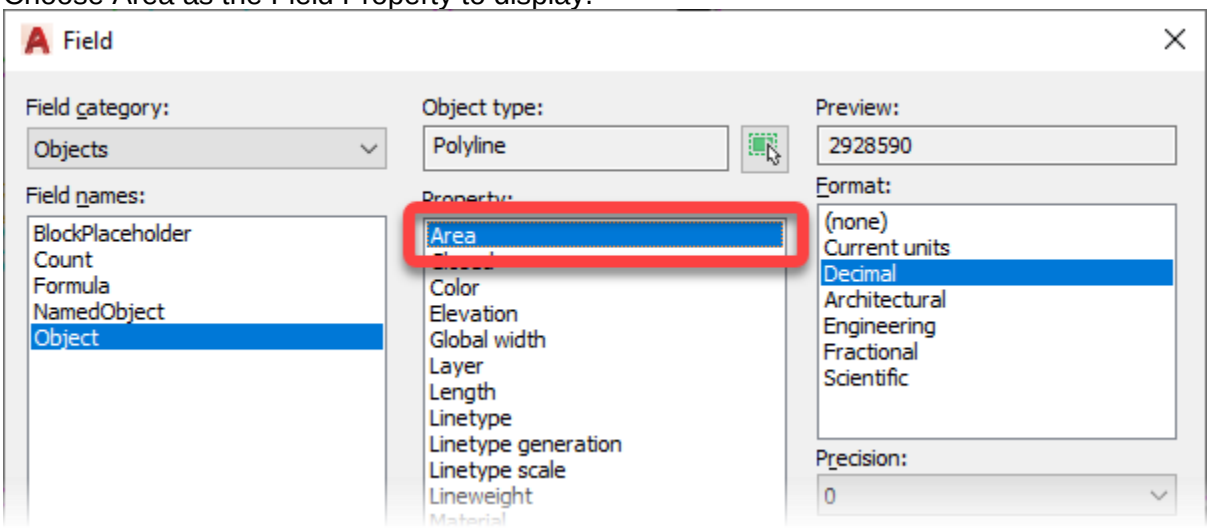
3. Choose Objects as the Category, and Object as the Field Name.



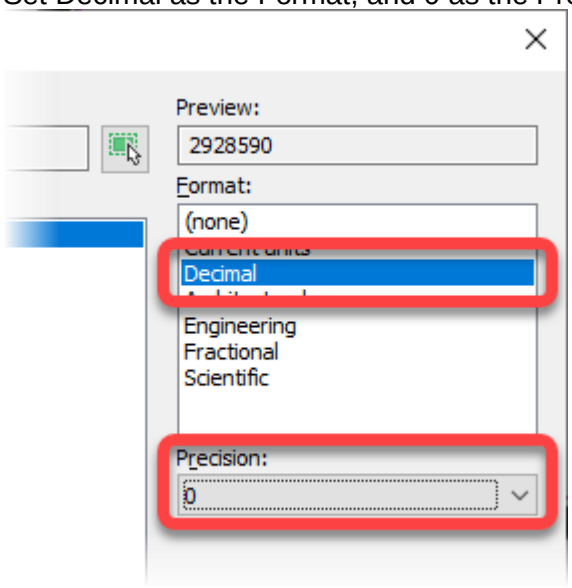
4. Choose the Object button and then select the closed polyline representing the occupancy space from your drawing.



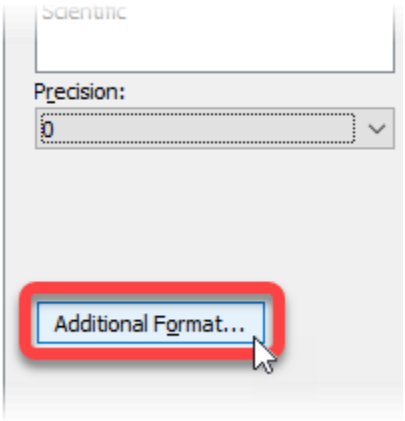
5. Choose Area as the Field Property to display.



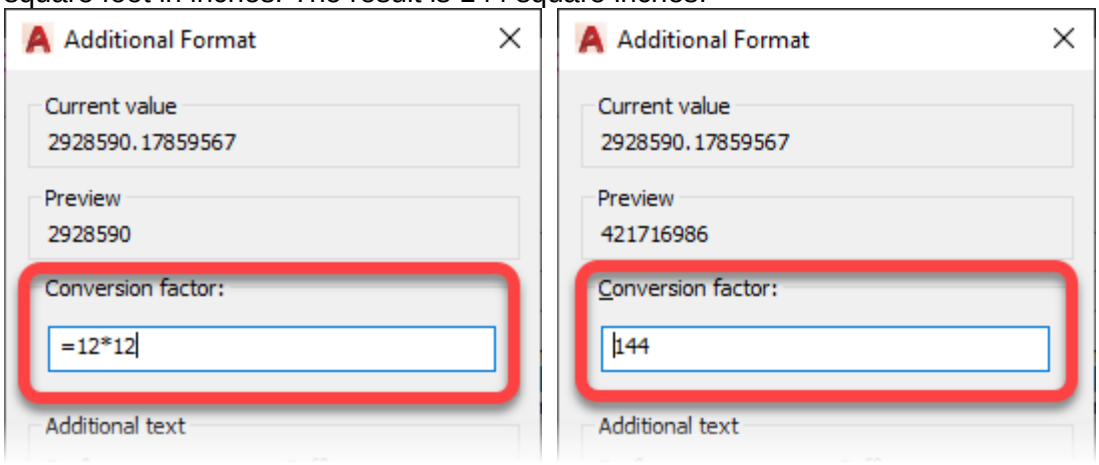
6. Set Decimal as the Format, and 0 as the Precision.



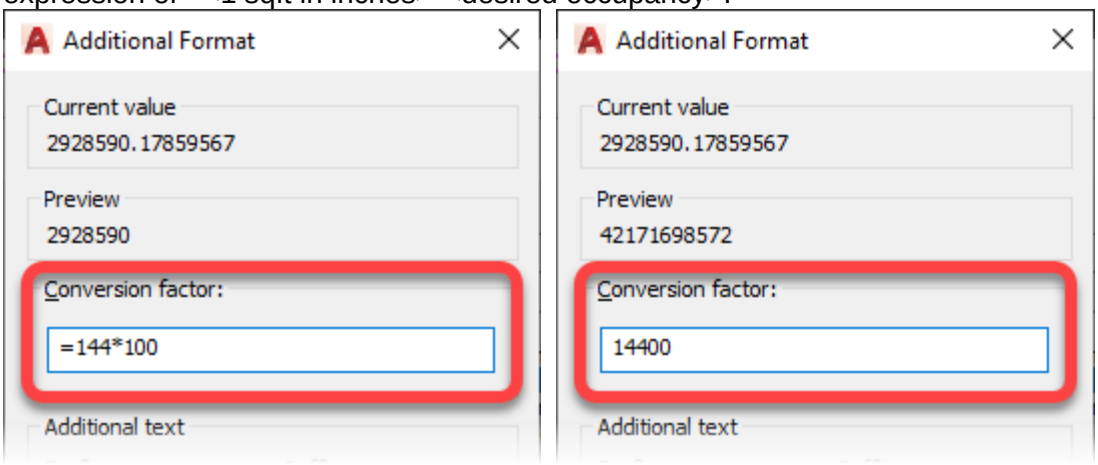
7. Click the Additional Format button.



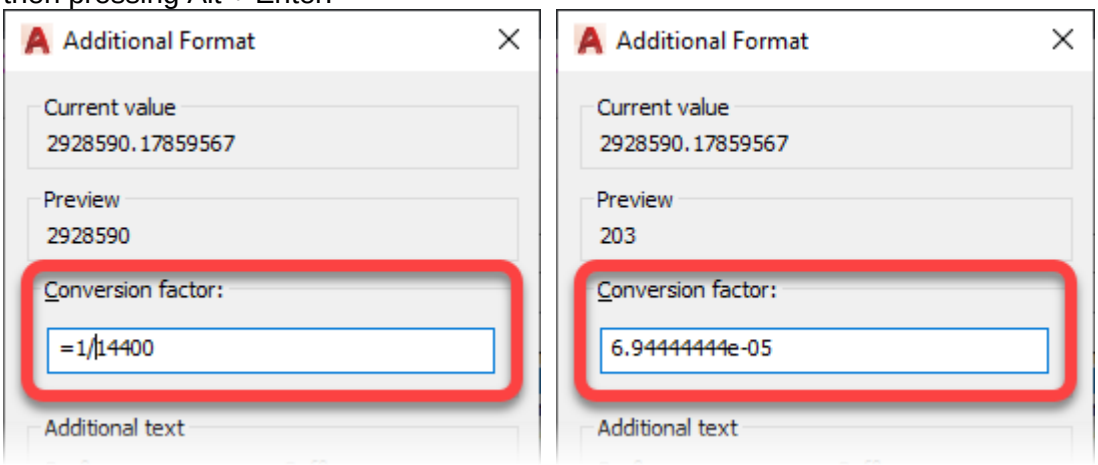
8. In the Conversion Factor text box, enter =12*12 and then press Alt + Enter to calculate 1 square foot in inches. The result is 144 square inches.



9. Assuming an occupancy of 1 person per 100 sqft, enter =144*100 and then Alt + Enter as the Conversion Factor. In this example, the result is 14,400, which corresponds to an expression of =<1 sqft in inches>*<desired occupancy>.

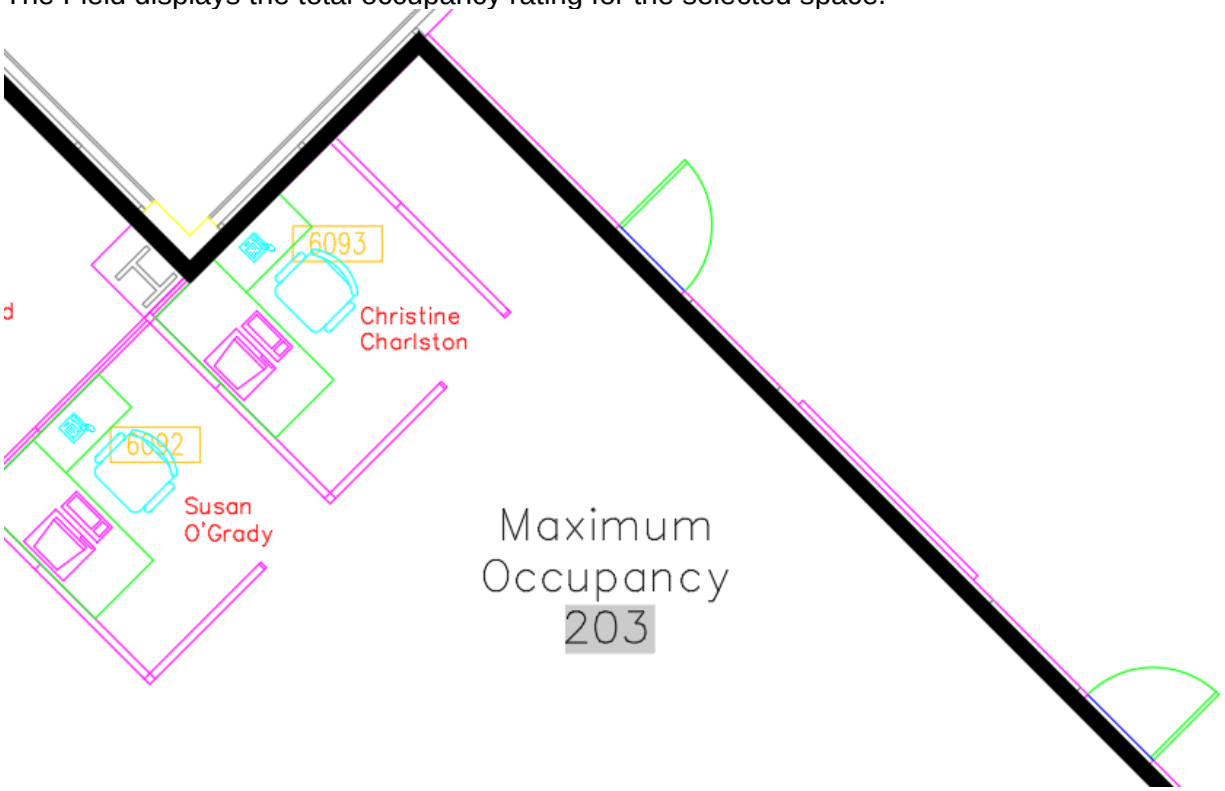


10. Calculate the Conversion Factor whereby 1 equals 14,400 by entering =1/14400 and then pressing Alt + Enter.



11. Click OK twice to dismiss the Additional Format and Field dialog boxes.

12. The Field displays the total occupancy rating for the selected space.



Highly Selective

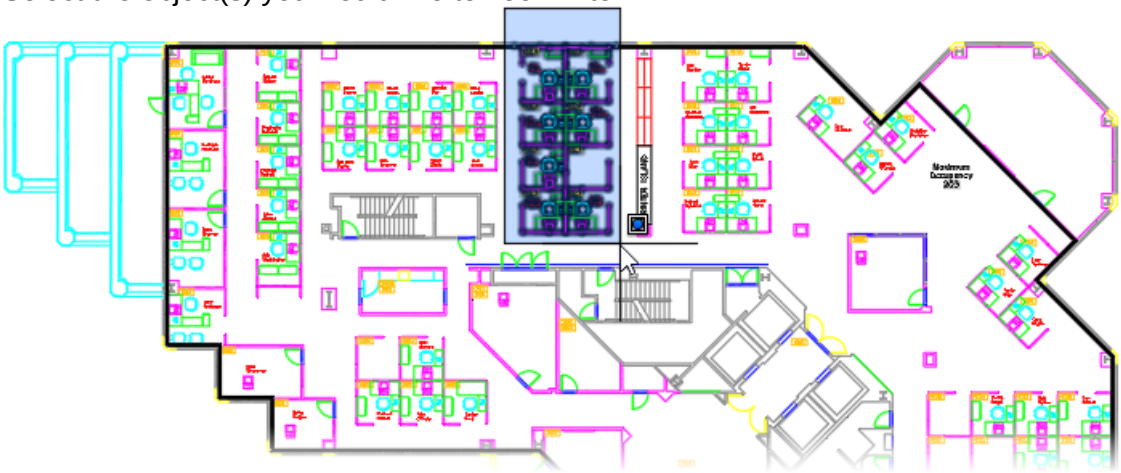
Zoom to Selected Objects with the View Cube

The View Cube is typically thought of as a tool to help you when drawing in 3D. While that's certainly true, it doesn't mean the View Cube doesn't have any tricks for 2D drawings too!

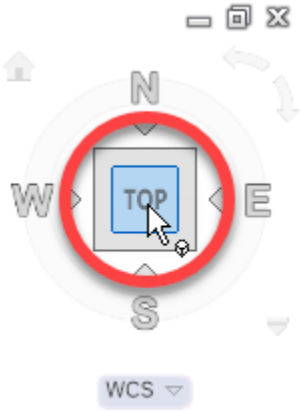
In fact, the View Cube is an outstanding companion to assist with zooming. Specifically, zooming to selected objects.

How to Do It

1. Select the object(s) you would like to zoom into.



2. Click the Top label of the View Cube.



Select Overlapping Objects with Shift + Spacebar

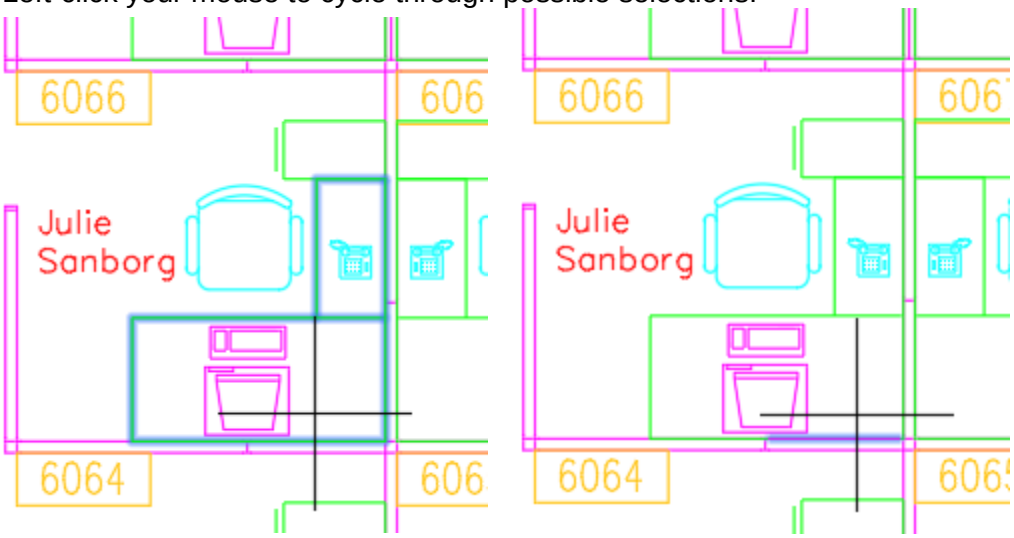
Even the most diligently maintained drawings often have some overlapping objects, and at some point you'll need to select those objects – but how?

Easy! Just press Shift + Spacebar while you select objects, and AutoCAD will cycle between stacked objects.

How to Do It

1. Pressing Shift + Space, click to select an object in your drawing.

2. Left-click your mouse to cycle through possible selections.



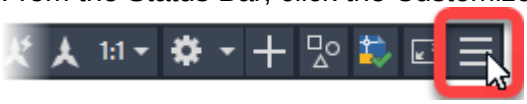
Use Selection Cycling to More Easily Select Objects

Speaking of overlapping objects, as drawings get more complex so too does the process of selecting objects within them. If the process of selecting objects feels like a game of selection roulette, you may want to check out Selection Cycling.

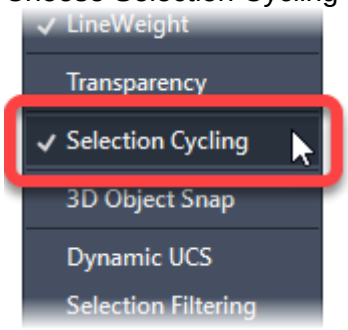
With Selection Cycling, whenever AutoCAD is confused about what you want to select, it will display a list of objects it thinks you may have wanted to select.

How to Do It

1. From the Status Bar, click the Customize button.

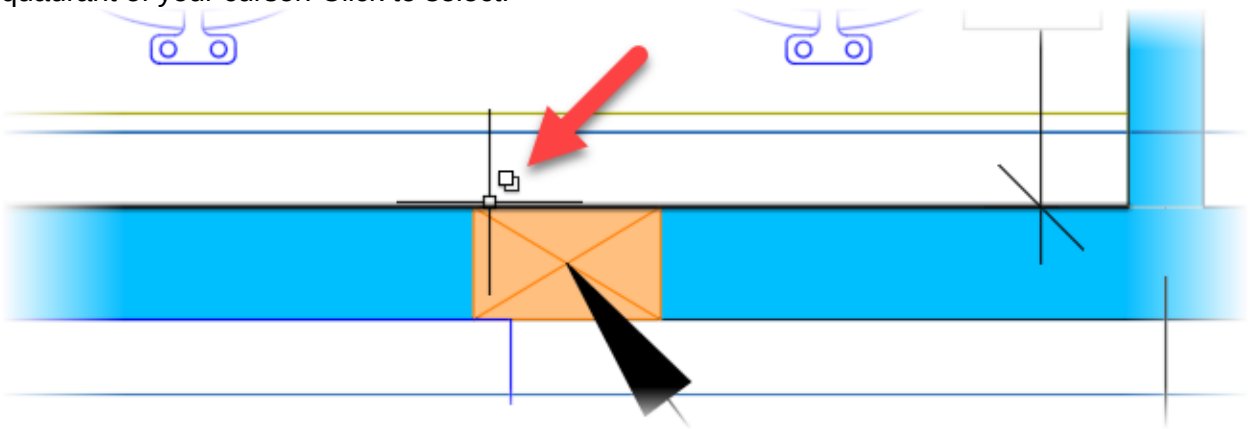


2. Choose Selection Cycling from the Customize menu.

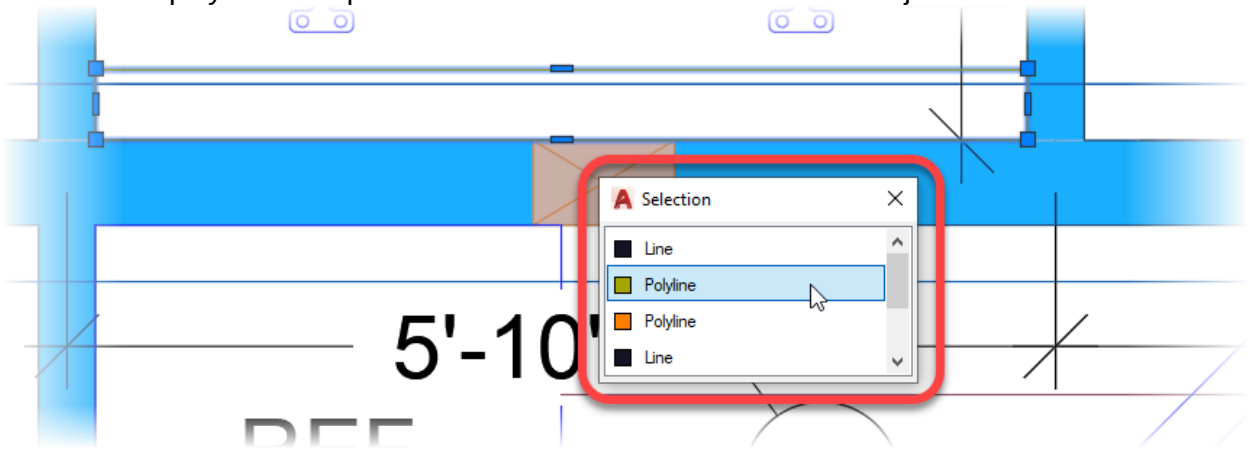


3. Click the newly added Selection Cycling button in the Status Bar to enable it (blue background).

4. Try to pick an object in a cluttered area of your drawing and note the glyph in the upper-right quadrant of your cursor. Click to select.



5. AutoCAD displays a list of possible selections. Choose the desired object from the list.



Block Party

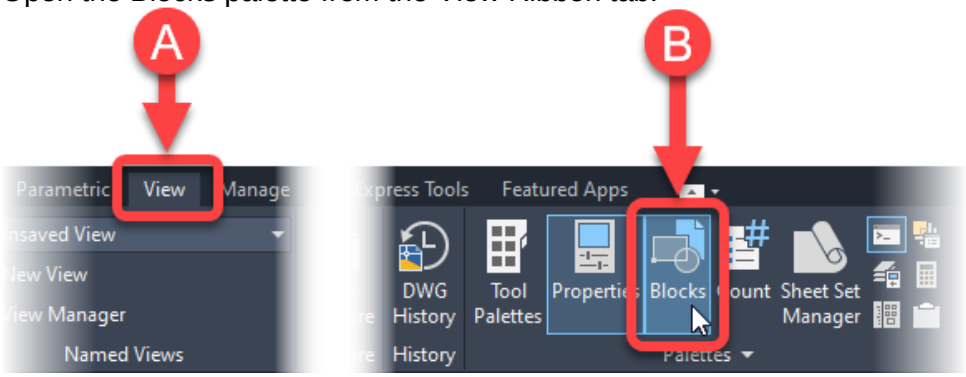
Quickly Access Recent & Frequently Used Blocks

The Blocks palette, which we find on the Palettes panel of the Ribbon's View tab, was first introduced in AutoCAD 2020 and has seen continuous improvements ever since.

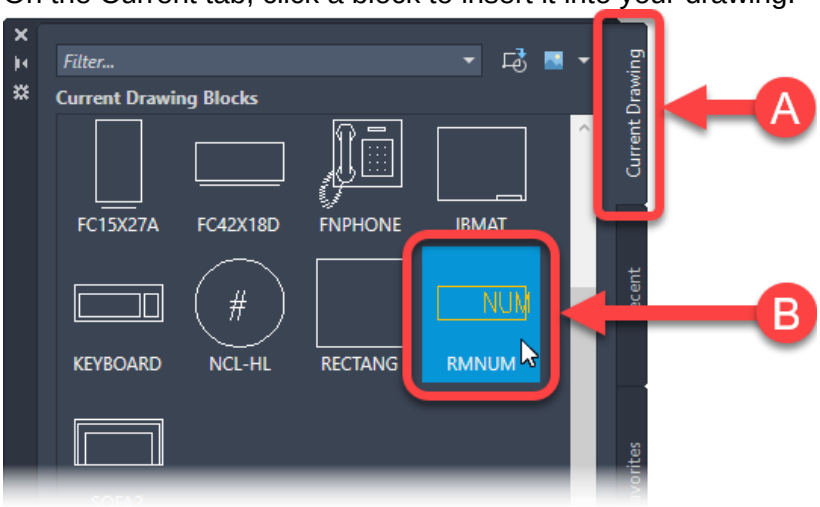
Among those improvements is the way you can use and access blocks between drawings. The latest additions of the Recent and Favorites tabs works like a dynamic Design Center crossed with Tool Palettes. Which is just another way of saying, I've found it to be a very helpful addition to AutoCAD.

How to Do It

1. Open the Blocks palette from the View Ribbon tab.

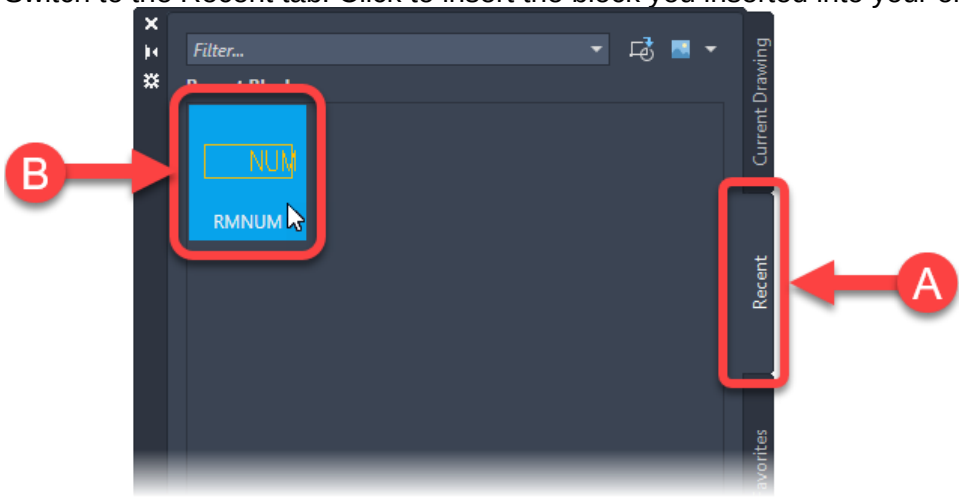


2. On the Current tab, click a block to insert it into your drawing.

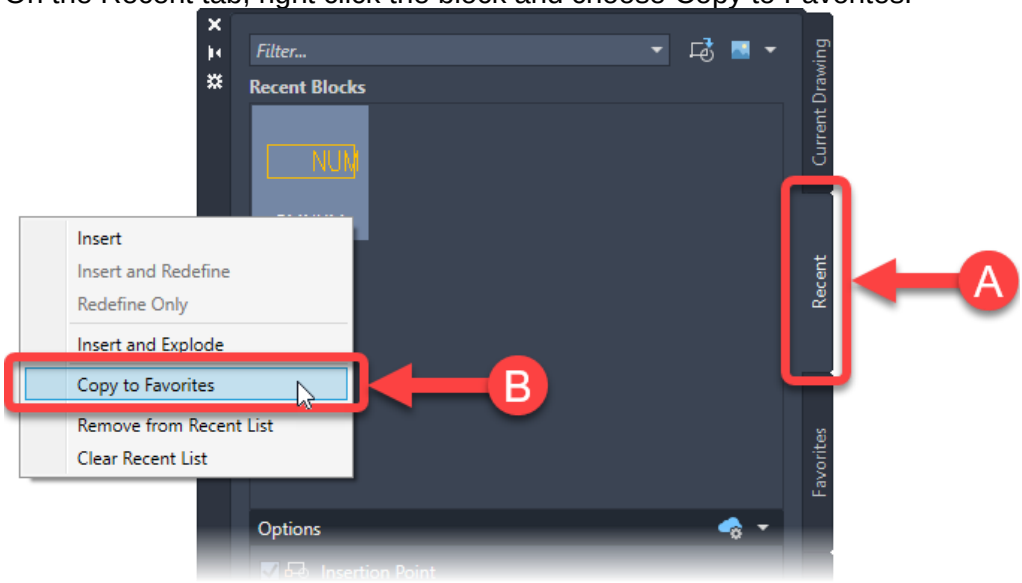


3. Open a new drawing.

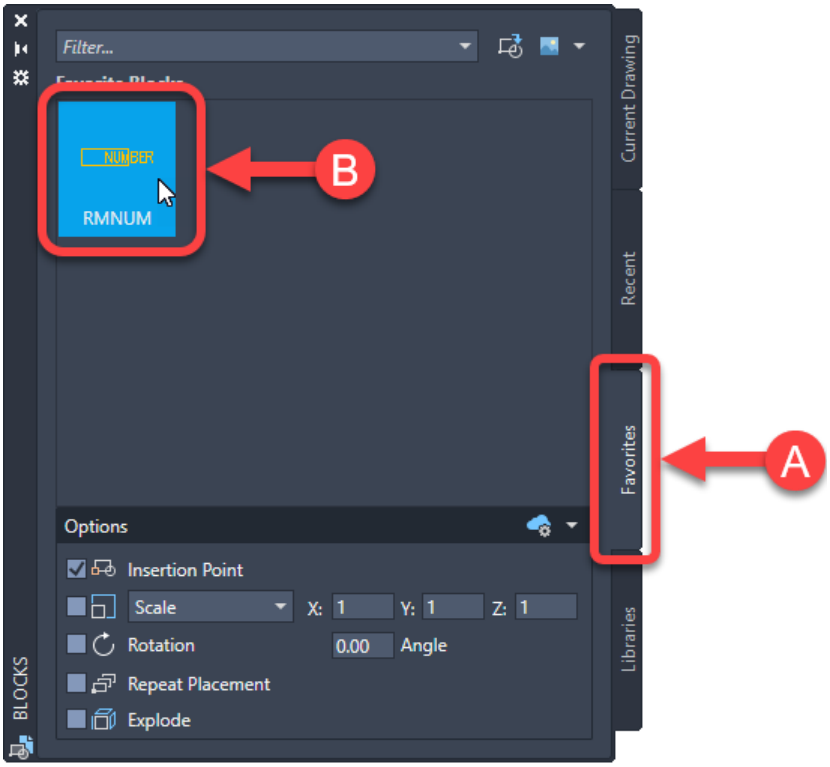
4. Switch to the Recent tab. Click to insert the block you inserted into your original drawing.



5. On the Recent tab, right click the block and choose Copy to Favorites.



6. Switch to the Favorites tab and notice the blocks inclusion in the gallery.



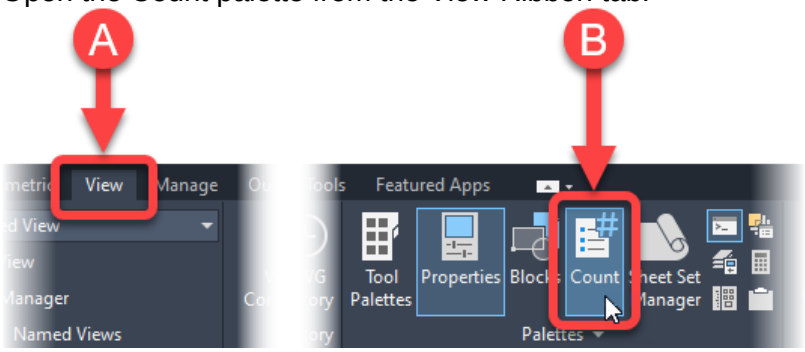
Instantly Count Blocks with the COUNT Command

Previous versions of this class has demonstrated the BCOUNT command as an easy way to count blocks in a drawing. While a handy command, the new in AutoCAD 2022 COUNT command is everything BCOUNT was and more!

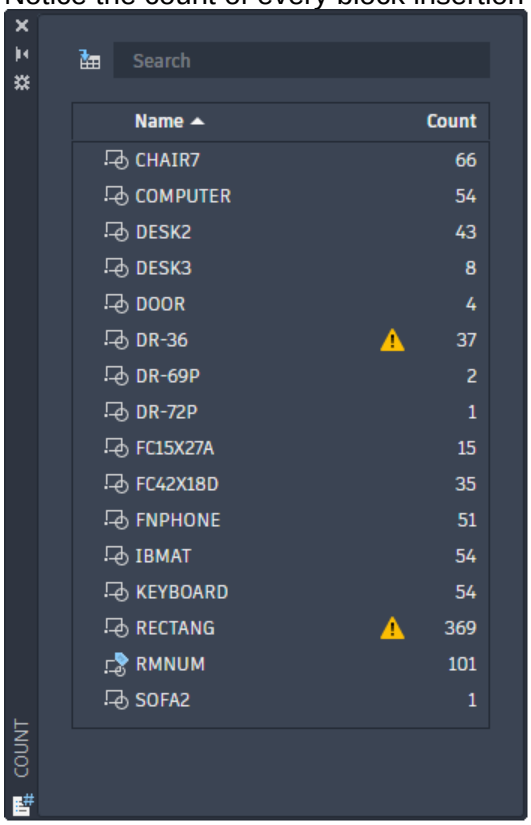
With a single click, you can get a count of all block insertions in your drawing, scan it for insertion errors (duplicate and exploded blocks), and even generate a dynamic table (schedule).

How to Do It

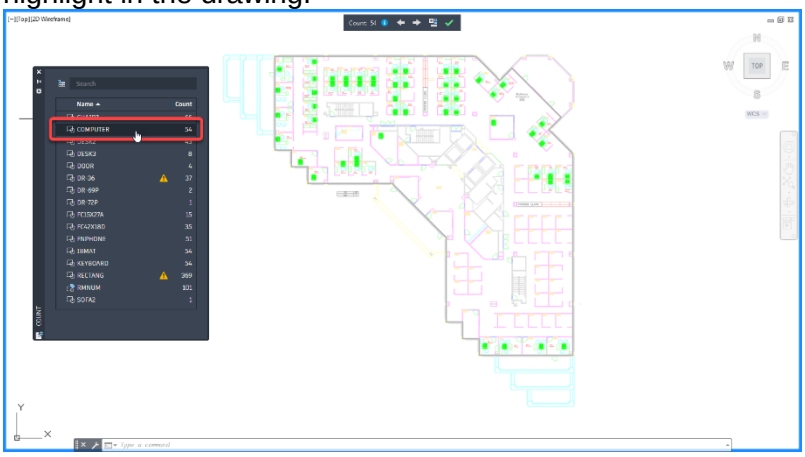
1. Open the Count palette from the View Ribbon tab.



2. Notice the count of every block insertion in the drawing.



3. Select on a block name from the Count palette. Notice how all insertions of the block highlight in the drawing.



4. Add/remove block insertions from the drawing. Notice how the count automatically updates.

Quickly Find Duplicate & Exploded Block Insertions

Taking a closer look at the new Count palette, you might notice some blocks have a warning shield next to them. What's up with that?

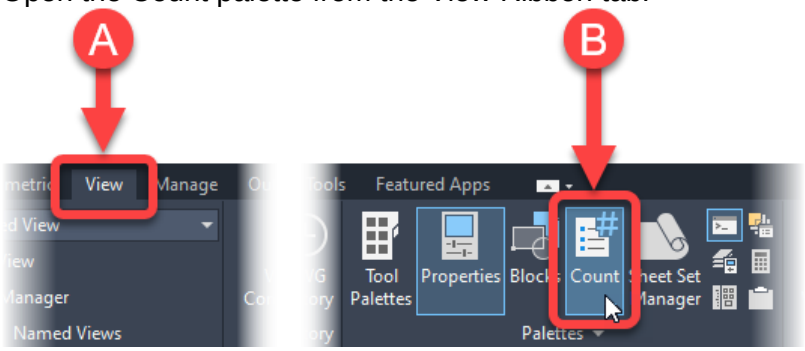
While we've had many ways to count blocks over the years, what we haven't had is a way to check the accuracy of those counts.

For example, did someone accidentally place two blocks atop each other, thus artificially inflating the overall count? Conversely, did someone explode a block insertion, thus artificially deflating the overall count?

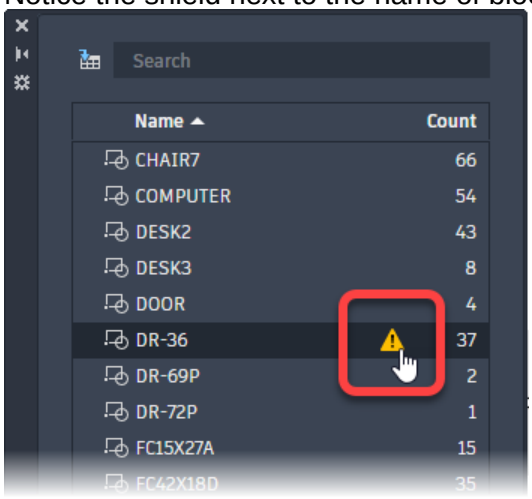
The COUNT command will scan your drawing for both of these scenarios.

How to Do It

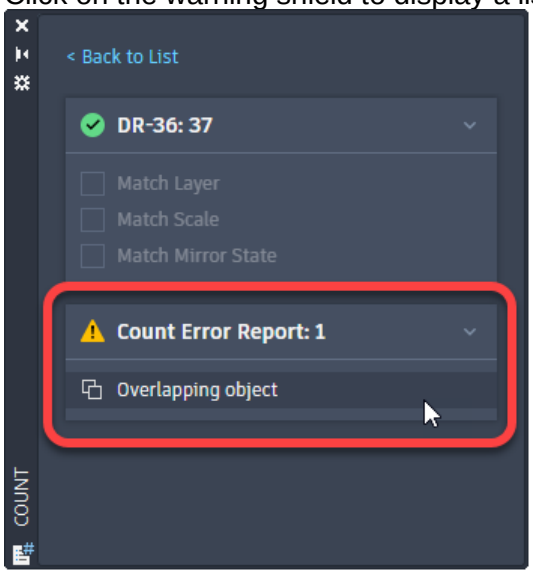
1. Open the Count palette from the View Ribbon tab.



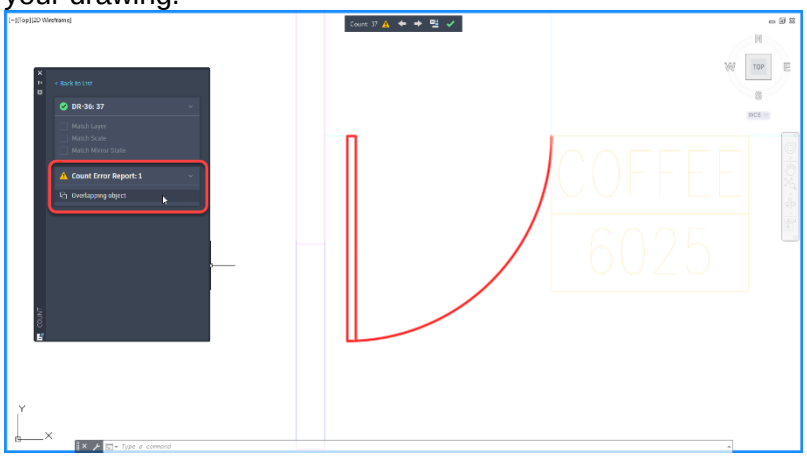
2. Notice the shield next to the name of blocks in the Count palette.



3. Click on the warning shield to display a list of potential issues.

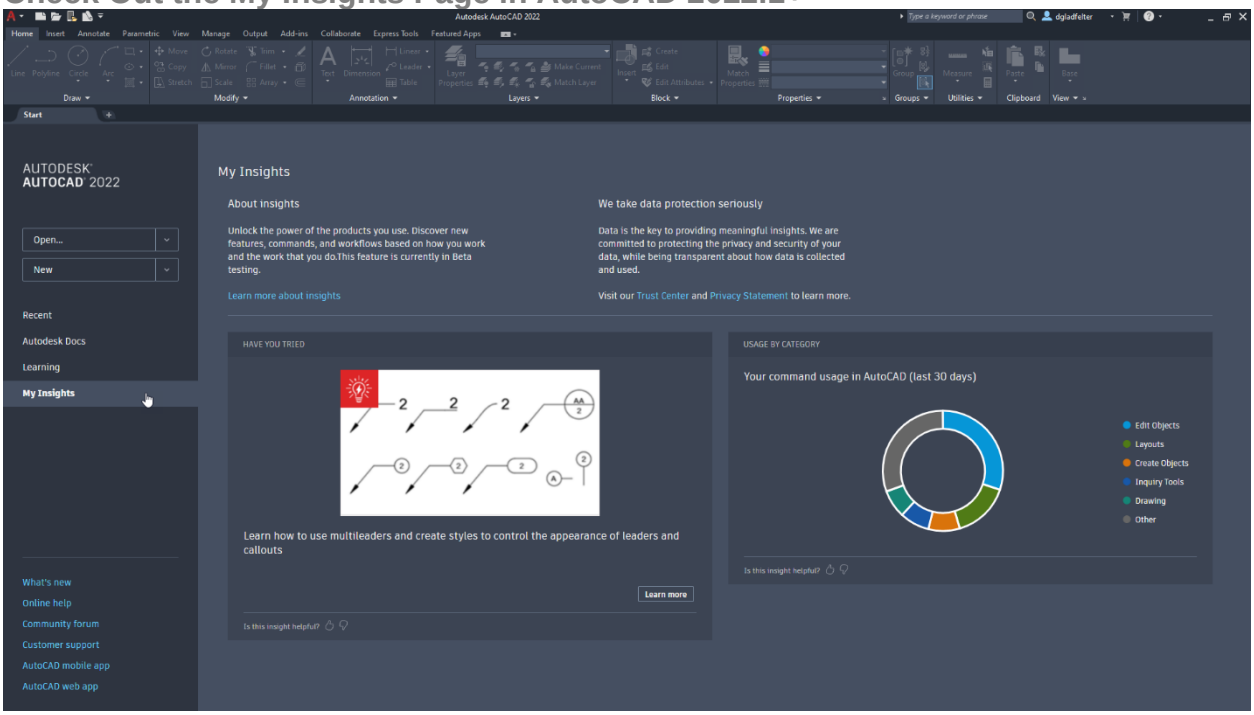


4. Click the “Overlapping Object” or “Exploded Block” warning from the list to zoom into it within your drawing.



Want More Tips?

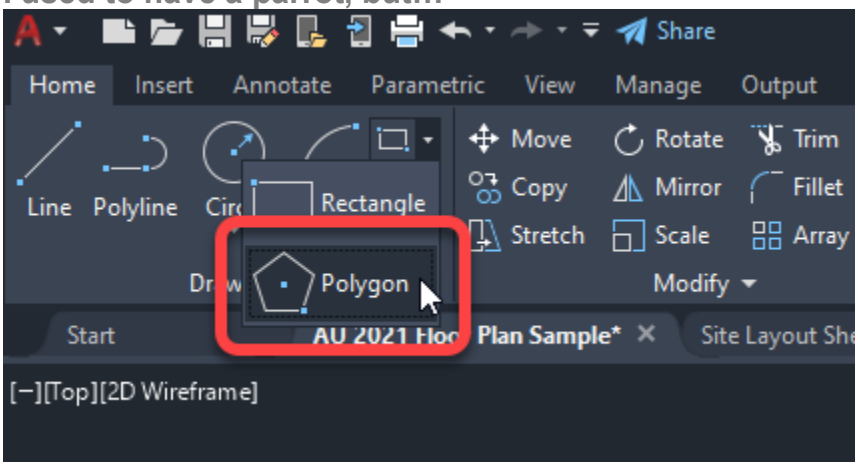
Check Out the My Insights Page in AutoCAD 2022.1+



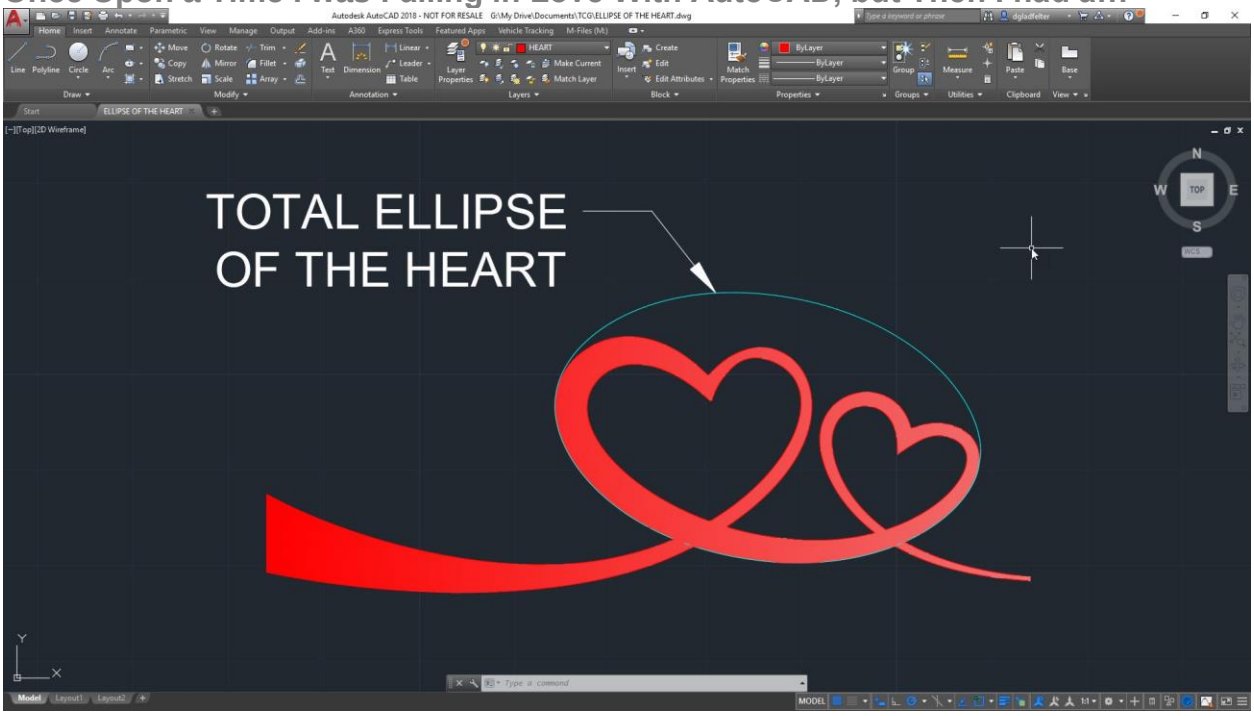
AutoCAD Dad Jokes

What does CAD stand for?
Ctrl + Alt + Delete

I used to have a parrot, but…



Once Upon a Time I was Falling in Love With AutoCAD, but Then I had a…



AutoCAD User Quitting Their Job